IN THE CLAIMS:

1. (Previously presented) An optical device including a ferroelectric liquid crystal material, said optical device comprising:

a first and a second substrate;

a first alignment treatment applied to a surface of the first substrate, said first alignment treatment being intended to induce an orientation of at least a portion of said ferroelectric liquid crystal material along a first alignment direction and with a first pretilt angle α_1 with respect to a plane parallel to said first substrate;

a second alignment treatment applied to a surface of the second substrate, said second alignment treatment being intended to induce an orientation of at least another portion of said ferroelectric liquid crystal material along a second alignment direction and with a second pretilt angle α_2 with respect to a plane parallel to said second substrate; and

wherein the first substrate is located with respect to the second substrate in such a way that the surfaces of the first and second substrates onto which the first and second alignment treatments were applied, respectively, are spaced apart, generally parallel and facing each other and a projection of the first alignment direction onto the treated surface of the first substrate makes a non-zero angle Ω with respect to a projection of the second alignment direction onto the treated surface of the first substrate such that, said ferroelectric liquid crystal material being injected between the first and second substrates, the optical device is free of chevron structures without a need to otherwise apply an additional treatment to the optical device.

2. (Previously presented) An optical device of Claim 1 wherein said ferroelectric liquid crystal material has a phase sequence of Isotropic – Nematic – Smectic A – Smectic C* –

Crystalline states.

3. (Original) An optical device of Claim 1 wherein said ferroelectric liquid crystal material having a cone angle θ, said non-zero angle Ω has a predetermined value such that $\Omega \geq 2\theta$ and $\Omega \neq 180°$.

4. (Original) An optical device of Claim 1 wherein said first and second alignment treatments are specifically chosen so as to specifically induce pretilt angles of α_1 and α_2, respectively.

5. (Original) An optical device of Claim 4 wherein said first alignment treatment includes a coating of a selected alignment material, said coating being applied, cured and treated so as to specifically induce the pretilt angle of α_1.

6. (Original) An optical device of Claim 5 wherein said second alignment treatment includes a coating of another selected alignment material, said coating being applied, cured and treated so as to specifically induce the pretilt angle of α_2.

7. (Original) An optical device of Claim 4 wherein each of said pretilt angles is at most 10°.

8. (Original) An optical device of Claim 4 wherein said first and second alignment treatments are generally identical.

9. (Original) An optical device of Claim 1 wherein said first and second alignment treatments provide strong molecular anchoring of at least portions of the ferroelectric liquid crystal material located immediately adjacent to the treated surfaces of the first and second substrates.

10. (Original) An optical device of Claim 1 further comprising:

a light input directed at said optical device in such a way that the optical device in turn

produces a light output of a particular optical state; and

means for electrically addressing said optical device in such a way that the particular optical state of the light output is continuously variable between a minimum optical state and a maximum optical state.

11. (Previously presented) An optical device of Claim 10 wherein an optical retardance of the optical device remains generally constant during said continuous variation of the optical state of the light output.

12. (Original) An optical device of Claim 1 wherein said first substrate includes a reflective surface.

13. (Previously presented) An optical system comprising:

an optical device including

a ferroelectric liquid crystal material,

a first and a second substrate,

a first alignment treatment applied to a surface of the first substrate, said first alignment treatment being intended to induce an orientation of at least a portion of said ferroelectric liquid crystal material along a first alignment direction and with a first pretilt angle α_1 with respect to a plane parallel to said first substrate,

a second alignment treatment applied to a surface of the second substrate, said second alignment treatment being intended to induce an orientation of at least another portion of said ferroelectric liquid crystal material along a second alignment direction and with a second pretilt angle α_2 with respect to a plane parallel to said second substrate, and

wherein the first substrate is located with respect to the second substrate in such a way that the surfaces of the first and second substrates onto which the first and second alignment

treatments were applied, respectively, are spaced apart, generally parallel and facing each other and a projection of the first alignment direction onto the treated surface of the first substrate makes a non-zero angle Ω with respect to a projection of the second alignment direction onto the treated surface of the first substrate such that, said ferroelectric liquid crystal material being injected between the first and second substrates, the optical device is free of chevron structures without a need to otherwise apply an additional treatment to the optical device;

a light input directed at said optical device in such a way that the optical device in turn produces a light output of a particular optical state; and

means for electrically addressing said optical device in such a way that the particular optical state of the light output is continuously variable between a minimum optical state and a maximum optical state wherein an optical retardance of the optical device remains generally constant during said continuous variation of the optical state of the light output.

14. (Previously presented) In an optical device including a ferroelectric liquid crystal material, a method for preventing formation of chevron structures in the optical device, said method comprising the steps of:

providing a first and a second substrate;

applying a first alignment treatment to a surface of the first substrate, said first alignment treatment being intended to induce an orientation of at least a portion of said ferroelectric liquid crystal material along a first alignment direction and with a first pretilt angle α_1 with respect to a plane parallel to said first substrate;

applying a second alignment treatment to a surface of the second substrate, said second alignment treatment being intended to induce an orientation of at least another portion of said ferroelectric liquid crystal material along a second alignment direction and with a second pretilt

angle α_2 with respect to a plane parallel to said second substrate;

locating the first substrate with respect to the second substrate in such a way that the surfaces of the first and second substrates onto which the first and second alignment treatments were applied, respectively, are spaced apart, generally parallel and facing each other and a projection of the first alignment direction onto the treated surface of the first substrate makes a non-zero angle Ω with respect to a projection of the second alignment direction onto the treated surface of the first substrate; and

injecting the ferroelectric liquid crystal material between the first and second substrates such that the optical device is free of chevron structures without a need to otherwise apply an additional treatment to the optical device.

15. (Previously presented) The method of Claim 14 further comprising the step of selecting a ferroelectric liquid crystal material having a phase sequence of Isotropic – Nematic – Smectic A –Smectic C* – Crystalline states.

16. (Original) The method of Claim 14 wherein, said ferroelectric liquid crystal material having a cone angle θ, said step of securing the first substrate with respect to the second substrate includes the step of specifying the value of angle Ω to have a value such that $\Omega \geq 2\theta$ and $\Omega \neq 180°$.

17. (Original) The method of Claim 14 further comprising the step of choosing said first and second alignment treatments so as to specifically induce pretilt angles of α_1 and α_2, respectively.

18. (Original) The method of Claim 17 wherein said step of applying the first alignment treatment to a surface of the first substrate further includes the steps of:

coating the surface with a selected alignment material;

curing said coated surface using a heating and cooling sequence; and

rubbing said cured, coated surface using a buffing material in such a way that at least a portion of said ferroelectric liquid crystal material tends to become orientated of along the first alignment direction with the first pretilt angle α_1 with respect to the plane parallel to said first substrate.

19. (Original) The method of Claim 18 said step of applying the second alignment treatment to a surface of the second substrate further includes the steps of:

coating the surface with another selected alignment material;

curing said coated surface using another heating and cooling sequence; and

rubbing said cured, coated surface using a buffing material in such a way that at least another portion of said ferroelectric liquid crystal material tends to become orientated of along the second alignment direction with the second pretilt angle α_2 with respect to the plane parallel to said second substrate.

20. (Original) The method of Claim 17 wherein sad step of applying the first alignment treatment to a surface of the first substrate and said step of applying the second alignment treatment to a surface of the second substrate are generally identical.

21. (Original) The method of Claim 17 wherein said choosing step further includes the step of taking into consideration molecular anchoring properties of said first and second alignment treatments so as to choose first and second alignment treatments to specifically induce pretilt angles of α_1 and α_2, respectively, while providing strong molecular anchoring of at least portions of the ferroelectric liquid crystal material located immediately adjacent to the treated surfaces of the first and second substrates.

22. (Original) The method of Claim 14 further comprising the steps of:

providing a light input to said optical device in such a way that the optical device in turn produces a light output of a particular optical state; and

electrically addressing said optical device in such a way that the particular optical state of the light output is continuously variable between a minimum optical state and a maximum optical state.

23. (Previously presented) An optical device of Claim 9, wherein the first and second pretilt angles are non-zero.

24. (Previously presented) An optical device of Claim 21, wherein the first and second pretilt angles are non-zero.

25. (Previously presented) An optical device including a ferroelectric liquid crystal material, said optical device comprising:

a first and a second substrate;

a first alignment treatment applied to a surface of the first substrate, said first alignment treatment being intended to induce an orientation of at least a portion of said ferroelectric liquid crystal material along a first alignment direction and with a first pretilt angle α_1 with respect to a plane parallel to said first substrate;

a second alignment treatment applied to a surface of the second substrate, said second alignment treatment being intended to induce an orientation of at least another portion of said ferroelectric liquid crystal material along a second alignment direction and with a second pretilt angle α_2 with respect to a plane parallel to said second substrate; and

wherein the first substrate is located with respect to the second substrate in such a way that the surfaces of the first and second substrates onto which the first and second alignment treatments were applied, respectively, are spaced apart, generally parallel and facing each other

and a projection of the first alignment direction onto the treated surface of the first substrate makes a non-zero angle Ω with respect to a projection of the second alignment direction onto the treated surface of the first substrate such that, said ferroelectric liquid crystal material being injected between the first and second substrates, the optical device is free of chevron structures without a need to otherwise apply an additional treatment to the optical device; and

wherein the ferroelectric liquid crystal material in the optical device is surface stabilized.

26. (Previously presented) An optical device including a ferroelectric liquid crystal material, said optical device comprising:

a first and a second substrate;

a first alignment treatment applied to a surface of the first substrate, said first alignment treatment being intended to induce an orientation of at least a portion of said ferroelectric liquid crystal material along a first alignment direction and with a first pretilt angle α_1 with respect to a plane parallel to said first substrate;

a second alignment treatment applied to a surface of the second substrate, said second alignment treatment being intended to induce an orientation of at least another portion of said ferroelectric liquid crystal material along a second alignment direction and with a second pretilt angle α_2 with respect to a plane parallel to said second substrate; and

wherein the first substrate is located with respect to the second substrate in such a way that the surfaces of the first and second substrates onto which the first and second alignment treatments were applied, respectively, are spaced apart, generally parallel and facing each other and a projection of the first alignment direction onto the treated surface of the first substrate makes a non-zero angle Ω with respect to a projection of the second alignment direction onto the treated surface of the first substrate such that, said ferroelectric liquid crystal material being

injected between the first and second substrates, the optical device is free of chevron structures without a need to otherwise apply an additional treatment to the optical device; and

wherein the first and second substrates are spaced apart by a distance sufficiently small to suppress formation of helixes typically formed in bulk of the ferroelectric liquid crystal material.